waveband through the down-link channel, saving the transmitter cost for the up-link channel to achieve a low-cost user's terminal. The 2.4-GHz ISM band is a non-licensed waveband, whereby a single license only on the down-link channel can be sufficient for the service operation, saving the running cost for the service.

Referring to Fig. 2, a wireless access system according to a second embodiment of the present invention is such that the down-link channel from the wireless base station 11 to the subscriber's terminal 12_1, $\cdots$ 12_N uses a 5-GHz frequency band, and the up-link channel from the subscriber's terminal 12_1, $\cdots$ 12_N to the wireless base station 11 uses a 2.4-GHz ISM band. The wireless access system is used as a point-to-multipoint access system which can be used for building a low-cost, high-speed Internet system, as in the case of the first embodiment. The constituent elements in the system of the present embodiment, such as amplifiers and transmitter/receiver units, are similar to those of the first embodiment

The wireless access system of Fig. 2 includes a wireless base station 11 connected to a communication network 13, a plurality of user's terminals 34, and a plurality of wireless subscriber's terminals 12_1 to 12_N to which the respective user's terminals 34 are connected through the user's Ethernet.

The wireless base station 11 includes a 5.3-GHz transmitter unit 35 having an antenna, a power amplifier and an up-link converter, a 2.4-GHz-ISM-band transmitter/receiver unit 36 having an antenna, a LNA, a down-link converter, a power amplifier and an up-link converter, and a

wireless MCA unit 37 having a two-band wireless system conversion function for converting the data between the Ethernet and the transmitter/receiver unit etc.

Each of the wireless subscriber's terminals 12_1 to 12_N includes a 2.4-GHz-ISM-band transmitter/receiver unit 32 having an antenna, a LNA, a down-link converter, a power amplifier and an up-link converter (or a 2.4-GHz-ISM-band transmitter unit 32 having an antenna, a LNA and a down-link converter), a receiver unit 31 having an antenna, a LNA and a down-link converter, and a wireless MAC unit 33 having a baseband modem between the same and the user's terminal 34. The wireless MAC unit 33 has a two-band wireless system conversion function.

Operation of the wireless access system of Fig. 2 will be described with reference to an example in which the user's terminal 34 accesses the user server 38 on the Internet.

First, the user's terminal 34 transmits a request packet to the Ethernet for requesting the user server 38 of transmission of desired data.

The request packet is fed to the wireless subscriber's terminal 12 through the user Eahternet.

The request packet fed to the wireless subscriber's terminal 12 is converted by the wireless MAC unit 33 into the frame format of the 2.4-GHz-ISM-band wireless link, subjected to modulation and frequency conversion, and then transmitted to the 2.4-GHz-ISM-band transmitter unit 32.

The request packet transmitted from the 2.4-GHz-ISM-band transmitter unit 32 is received by the 2.4GHz-ISM-band receiver 36 in the

wireless base station 11, subjected to frequency conversion and demodulation to be restored to the original request packet in the wireless MAC unit 37.

If the 2.4-GHz wireless link requires an acknowledge (ACK) signal, the ACK signal is returned to the wireless subscriber's terminal 12 through the 2.4-GHz wireless link.

The request packet restored in the wireless base station 11 is fed through the backbone network 13 connected to the wireless base station 11 to the ISP server and then the router of the ISP14, and transmitted to the Internet 15.

The user server 38 targeted on the Internet 15 receives the request packet from the Internet 15, and returns a response packet group.

The response packet group transmitted from the user server 28 arrives at the wireless base station 11 through the Internet 15, the ISP 14, and the backbone network 13.

The response packet group fed to the wireless base station 11 is converted by the wireless MAC unit 37 into the frame format of the 5-GHz wireless link, subjected to modulation and frequency conversion to be fed to the 5-GHz transmitter unit 35.

The response packet group fed through the 5-GHz transmitter unit 35 is received by the 5-GHz receiver unit 31 of the wireless subscriber's terminal 12, subjected to frequency conversion and demodulation to be restored to the original response packet group in the wireless MAC unit 33.

The response packet group thus restored to the original packet group is fed to the user's terminal 34 through the user's Ethernet.